September 23, 1998, and German Applications, DE 19821060.4, filed May 11, 1998, and DE 19741929.1, filed September 23, 1997.

Background of the Invention

At page 3, line 37, before "There is thus", insert

Summary of the Invention

At page 9, lines 8-9, replace "The figures serve to illustrate the invention:" with

Detailed Description

The drawings are first briefly described.

Brief Description of the Drawings

In the Claims:

Cancel claims 29-52.

Amend claims 1, 2, and 11-14 as follows.

1. (Amended) A costimulating molecule

a) having the biological activity of costimulation of T cells,

b) [which occurs] the molecule being present on activated $CD4^+$ and $CD8^+$ T lymphocytes but not resting or activated B cells, granulocytes, monocytes, NK cells or

dendritic cells, and

c) [which has] the molecule having two polypeptide chains, the [said] molecule having a molecular weight of about 55 to 60 kDa as determined [in a] by nonreducing SDS polyacrylamide gel electrophoresis, and the two polypeptide chains of the [said] molecule having [a molecular weight] molecular weights of about 27 kDa and about 29 kDa as measured [in a] by reducing SDS polyacrylamide gel electrophoresis.

4 cont'd

2. (Amended) A costimulating molecule having the biological activity of costimulation of T cells, the molecule comprising an amino-acid sequence which [shows] has at least 40% homology with the sequence comprising 199 amino acids in Fig. 15 (SEQ ID NO:2), or a biological active fragment or an analogue thereof.

11. (Amended) [Method] A method for preparing a costimulating molecule according to Claim 1, the method comprising [the cultivation of] cultivating the host cell according to Claim 9 for expression of the [said] molecule in the host cell.

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12. (Amended) [Method] A method for preparing a costimulating molecule according to Claim 1, the method comprising [the cultivation of] cultivating the host cell according to Claim 10 for expression of the [said] molecule in the host cell.

13. (Amended) [Method] A method for preparing a costimulating molecule according to Claim 2, the method comprising [the cultivation of] cultivating the host cell according to Claim 9 for expression of the [said] molecule in the host cell.

14. (Amended) [Method] A method for preparing a costimulating molecule according to Claim 2, the method comprising [the cultivation of] cultivating the host cell according to Claim 10 for expression of the [said] molecule in the host cell.

Add the following new claims 53-70.

53. A pharmaceutical composition comprising a substance that inhibits the biological activity of a costimulating molecule according to Claim 1.

54. A pharmaceutical composition comprising a substance that inhibits the biological activity of a costimulating molecule according to Claim 2.

55. The pharmaceutical composition of claim 53 or 54, wherein the substance comprises a monoclonal antibody, a natural or synthetic ligand, an agonist, or an antagonist.

56. A method of treating an autoimmune disease, preventing a rejection reaction

in an organ transplant, or treating dysregulation of the immune system in a mammal, comprising administering to the mammal a substance which inhibits the biological activity of a costimulating molecule according to Claim 1 or Claim 2 in an amount sufficient to treat the autoimmune disease, prevent rejection in an organ transplant, or treat dysregulation of the immune system.

57. A pharmaceutical composition comprising a costimulating molecule according to Claim 1 or a cell expressing said costimulating molecule.

58. A pharmaceutical composition comprising a costimulating molecule according to Claim 2 or a cell expressing said costimulating molecule.

59. A method for treating cancer, AIDS, an asthmatic disorder, or a chronic viral disease in a mammal, the method comprising administering to the mammal a costimulating molecule or cell according to Claim 57 or Claim 58 in an amount sufficient to treat the cancer, AIDS, asthmatic disorder, or chronic viral disease.

60. The method of claim 59, wherein the chronic viral disease is caused by an HCV or HBV infection.

61. A method for diagnosing a disorder involving the immune system in a subject, the method involving contacting a sample from the subject with a substance which specifically recognizes a costimulating molecule according to Claim 1 or Claim 2, and determining whether the level of the costimulating molecule is altered relative to the level in a reference sample.

62. The method of claim 61, wherein the substance comprises a nucleic acid molecule.

63. The method according to claim 62, wherein the nucleic acid is RNA or DNA.

64. The method according to claim 61, wherein a hybridization or nucleic acid amplification technique is used for the diagnosis.

65. The method according to claim 64, wherein the nucleic acid amplification technique is PCR.

66. The method according to claim 61, wherein the substance comprises a monoclonal antibody, a natural or synthetic ligand, an agonist, or an antagonist.

67. The method according to claim 61, wherein an ELISA, flow cytometry, Western blot, radioimmunoassay, nephelometry, or histochemical staining is used for the diagnosis.

68. A pharmaceutical composition comprising a substance which modulates a signal transduction pathway of a costimulating molecule of Claim 1 or Claim 2 in a T cell.

69. A pharmaceutical composition comprising a substance which prevents the up-regulation of a costimulating molecule according to Claim 1 or Claim 2 on the T-cell surface.

70. A method for producing antibodies to a costimulating molecule of Claim 1 or Claim 2, the method comprising administering the costimulating molecule to an animal and isolating the antibodies produced.